VaTNug News

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The Virginia Tech NeXT User's Group

/.NeXT/.NextTrash

Editor's Column

Well, the summer is coming to a close, and new developments are pouring out of NeXT, Inc., if rumors (and even official announcements) are to be believed.

NeXTStep 486, now slated for release in early Q1 1993, may prove to be just what it takes to make NeXT a major player in the tough-to-crack operating system market.

Bob Lawton, the NeXTStep 486 program manager, gave a presentation at the September meeting of BaNG, the [San Francisco] Bay Area NeXT Group. Here are some of the highlights of his presentation (culled from the Usenet):

NeXTStep 486 will run on nearly any generic 80486 PC clone (contrary to a previous rumor that it would run on a 386, it does use 486-specific instructions). It supports sessions of regular MS-DOS 5.0 based programs at full speed (including graphical programs), and complete functionality with Windows 3.0/3.1 in protected virtual memory ("386 enhanced") mode, "Win32" NT 32 bit applications, and (not promised but implied) future Windows NT programs. When running Windows programs the MS-DOS session is done through a ultra high speed directly mapped GDI device driver. This allows a resizable workspace that Windows intelligently knows the borders of. It also allows in a future (Q4 1993) version of NeXTStep the ability to use a separate GDI based window for each of the currently running Windows-based programs, including the ability to intermix NeXT windows and MS-Windows windows.

NeXTStep 486 comes with EVERY one of the ultra high-quality free applications and services, full graphical, indexable docs on-line, as well as all the examples and demos provided with any NeXTStep 3.0 system.

It allows you to read and write files between the partitions supporting NeXTStep and those of MS-DOS. It supports generic VGA 640*480 video cards all the way to dual monitor based 1280*1024 32 bit color screens with 7 live video feeds (future product from an unspecified manufacturer). The reason even 640*480 support was included is to allow NeXTStep to run on portable computers.

NeXT expects, based on the current

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Upgrading to NeXTSTEP 3.0

by Timothy Buck

Upgrading an operating system sounds like a daunting task, especially one as complex and sophisticated as NeXTSTEP. But it doesn't have to be, and the software engineers at NeXT came up with an intelligent application to make the upgrade from NeXTSTEP 2.x to 3.0 as painless and effortless as possible.

The NeXTSTEP 3.0 Upgrade package includes the CD-ROM itself in a cardboard/plastic "Digi-Pak" CD container (with a serial number label), a "kickstart" floppy disk with Tools, a Release Notes booklet, an Upgrade instruction manual, a registration card, and a Software License Agreement. The booklets are printed in several different languages on recycled paper.

Since some of you will likely be upgrading in the near future, I thought it would be helpful to share with you my experiences upgrading my NeXTStation at home from release 2.0 to 3.0.

My first caveat is this: MAKE A BACKUP BEFORE YOU BEGIN!!! It will save you a lot of grief in the unlikely event that something goes wrong. I lost one important thing during my upgrade (the *WriteNow* application--more about that later), but I have a backup I made a couple of weeks ago so I was able to restore the application.

The first thing you do (after making

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Printing Connections

by Gregory Lampshire

Many people who buy NeXT computers already have an investment in other computers and software. The ability to integrate the NeXT computer into their environment is important. This article describes how to use a networked NeXT computer and NeXT 400 dpi laser printer with networked Macs and the IBM mainframe.

The NeXT comes with standard UNIX networking software that allows you to telnet, ftp, and remote print on the NeXT computer using TCP/IP software and ethernet or twisted-pair connections. Va. Tech uses ethernet and there is a readily available TCP/IP software package for the Mac called MacTCP. The IBM mainframe also allows remote printing using TCP/IP connections.

Printing from Macs to NeXT printers

We will assume that `MacTCP` and the Mac `lpr` software is already installed on your machine. If it is not installed, check with your local Mac guru or the Computing Center for obtaining this software. I will assume that you are running Macintosh System 7.0. What we wish to do is print a Postscript file from the Mac on the NeXT. We need to make some changes using the Mac resource editor (`ResEdit`) pertaining to the generation of Postscript files. Apparently, some of the Postscript comments in the Mac generated files will cause the `lpd` daemon on the NeXT to hang. We will simply remove the offending comments. The Postscript files generated on the Mac will still print on LaserWriters so you will not lose the capability to print to your Mac printers.

Step 1:

Set up the Mac *lpr* program as indicated in the directions. You will need the node name of the NeXT computer and the name of the printer. When you attach a NeXT printer to a NeXT computer the printer name will be "Local_Printer". This is the name to use in the `lpr` setup. Is some cases you might also need the Internet number for the NeXT computer. To obtain this, contact your local system administrator or call the Computing Center.

Step 2:

Make a backup of the "LaserWriter" folder in the folder "System Folder/Extensions" in case the changes we make cause more havoc than they are worth. The problem occurs with the Postscript comments "`%%BoundingBox:`" and "`%%Pages:`". We will simply remove these comments from all Postscript files generated on the Mac. Do the following:

Launch ResEdit.
Open "LaserWriter."
Open up resource `POST`.
Open up `POST` id `-8158`.
Scroll down until you see "`Command #21`".
Remove the templates for the commands "`%%BoundingBox:`" and "`%%Pages:`".
Save "LaserWriter"

Step 3:

You must give your Mac permission to print on your NeXT. To give the Mac permission, add the node name (i.e. "*mymac.mydomain*.vt.edu") to the file `/etc/hosts.lpd` on the NeXT. This file might not exist when you first get your machine so you will need to create it. Also, you must be root when you modify or create this file. The nodename should be given on one line without any other entries. You only need to do this once and permission is given until the entry in the file or the file itself is removed.

Step 4:

To print Postscript files from the Mac, use the Print Panel option to print the document to a file of type Postscript.

Step 5:

Start Mac `lpr` and select the file that you created in Step 3.

The above steps should allow you to print from the Mac on the NeXT printer using a TCP/IP connection without causing the NeXT printer daemon to hang.

Printing from the IBM mainframe to NeXT printers

The IBM mainframe now has support for remote printers. See Computing Center Documents PR04 and PR05 for more details. There is problem with specifying the remote printer, however, in that the remote printer's name can only have a limited number of characters. The NeXT printer name "Local_Printer" is too long so we will need to add an alias name that is shorter.

Step 1:

Add the alias name for the NeXT printer. You will need to be root to do this so check with your sysadmin for this step.

Startup up `/NextAdmin/NetInfoManager`. Select Printers then double click on "Local_Printer". Click on Name. Select the menu item Directory. Then select New Value. This will append a new value field. New type in the alias name of the printer like "myps." Quit from NetInfoManager and save the changes when prompted.

Step 2:

While logged in to your mainframe account, type

`lprset` *`myps NeXT_nodename`* `(permanent`

This sets the printer and nodename permanently. You will only need to do this once. If you cannot execute this command you may need to type "exec `testsoft`" to link to the disk which has the lpr commands. If you need to do this, you should probably put "exec `testsoft`" in your "profile `exec`" file.

Step 3:

Give the mainframe permission to print on your NeXT printer by adding "vtvm1.cc.vt.edu" to the `/etc/hosts.lpd` file as in step 3 in the instructions for the Mac.

Step 4:

Check the connection by typing
lpq

If you get an error message check to make sure that Step 1 has been done properly and that you typed the correct names in Step 2. You should get a message telling you that there are no entries in the NeXT printer queue.

Step 5:

Print using lpr. Use the command "help `lpr`" to see all of the options or see the Docs referenced above.

Note that you must use the LPR command and not PRTPS. PRTPS is for printers which are directly connected to

(See Printing *on page 4)*

NeXT: The NeTWork Navigator

by James Powell

Programmers across the Internet are turning the NeXT computer into the premiere Internet navigation system with a number of slick clients to popular and new information services. NeXT users not connected to the Internet (either directly or with SLIP) may want to do so after reading about the utilities available (some exclusively for the NeXT) which open up vast sources of information to NeXT users while discarding the cryptic command-line clients users of most other Unix platforms are stuck with.

Are you looking for a specific public domain or shareware package on the Internet but don't know where to find it? Try **Archie**. This application can connect to 8 different archie servers on the net and search its database of anonymous FTP file listings to guide you to your selection. The NeXT Archie client can even perform the anonymous FTP for you.

Or you can browse anonymous FTP sites with **Gator FTP+**. This builds a File Viewer-style listing of remote FTP sites. Other features include a quick-access list for commonly used FTP sites and NeXT-like retrieval options.

Want to know more about a town or city? **Gazetteer** will connect you to a geographic name server that contains basic geographic information on a number of cities and towns around the world.

Information of all types is just a mouse click away with **Gopher**. This graphical client connects with gopher information servers around the world which provide access to library online databases, Archie sites, anonymous FTP, and other types of information as they become available.

LC allows you to search a database of a subset of the Library of Congress catalog records.

WAIStation is a graphical interface to the full-text search engine created by Thinking Computers, Inc. It includes utilities to index your local data and a server that you can run to provide access to your data over the Internet.

Weather connects you with several up-to-date weather information databases on the Internet. It even allows you to request and view satellite photos of the US posted hourly.

World Wide Web is an advanced hypertext document creation and retrieval system based on Standard Generalized Markup Language (SGML). Hypertext documents may be created locally and linked to other documents scattered around the world at other WWW sites. This application includes an SGML editor and a server application.

Name: Archie (Archie1.2.tar.Z)
Location: sonata.cc.purdue.edu, directory /pub/next/2.0-release/source
Notes: Works fine with 3.0. Searching should be easy enough with SLIP, but retrieving files may take a while.

Name: Gator FTP+ (GatorFTP+.Z)
Location: sonata.cc.purdue.edu, directory /pub/next/2.0-release/binaries
Notes: Works fine with 3.0. SLIP browsing should be fine, but again file retrieval would be slow.

Name: Gazetteer (Gazetteer.app.tar.Z)
Location: sonata.cc.purdue.edu, directory /pub/next/2.0-release/source
Notes: Have not tested under 3.0. Should work fine with a SLIP connection.

Name: Gopher (Gopher1.11.tar.Z)
Location: sonata.cc.purdue.edu, directory /pub/next/2.0-release/source
Notes: Tends to die under 3.0. Hopefully a 3.0 version will be posted soon. SLIP performance will vary on size of document or file being retrieved.

Name: LC (LibraryOfCongress1.0.tar.Z)
Location: sonata.cc.purdue.edu, directory /pub/next/2.0-release/source
Notes: Works fine under 3.0. Performance should be fine with SLIP.

Name: WAIStation (WAIStation1.9.1.tar.Z)
Location: sonata.cc.purdue.edu, directory /pub/next/2.0-release/source
Notes: Works fine under 3.0, although a small bug fix is posted as 1.9.3. As with Gopher, performance will vary over SLIP depending on document sizes. This software includes a server and great tools for setting up your own sources.

Name: Weather (Weather1.0.tar.Z)
Location: sonata.cc.purdue.edu, directory /pub/next/2.0-release/source
Notes: Works fine under 3.0. SLIP performance will be fine for text-based weather reports, but avoid retrieving any weather maps with a SLIP connection. (This was a fascinating, if sobering, way to monitor the progress of hurricane Andrew).

Name: World Wide Web (WWW-WorldWideWeb.app.tar)
Location: athene.uni-paderborn.de, directory /pcsoft/NeXT/programs
Notes: Works fine under 3.0. Performance varies dramatically even with a direct connection to the Internet, because the system connects to its home in Switzerland by default. Once the "root" document is customized, performance should improve. This software holds great promise in that it provides an entirely new way to search the Internet, and it "knows about" other systems such as WAIS and gopher. Indeed, intelligent algorithms such as knowbots are designed to take advantage of this type of distributed information base. It includes a simple SGML editor and a server application is also available.

WAIS, Gopher, and other tools are in use at Newman Library as part of Scholarly Communications (an electronic journals publication & distribution project).

The Scholarly Communications project maintains an anonymous FTP site (*borg.lib.vt.edu* or *128.173.7.185*), which is the official distribution site for the VaTNug News as well as several other electronic journals. This machine is a NeXTStation Turbo running NeXTStep 3.0.

Printing *(from page 2)*

the mainframe and can be specified as an actual device. Since we are going over a TCP/IP connection the NeXT printer is considered a remote printer and not a device.

You may also print your Script documents on the NeXT printer using the new version of Script and the following command (see the above referenced Docs for more details):

```
sc myfile (d psa file
  (myfile psout)
lpr myfile psout (binary
```

You may type `lpq` to see when the file has finished printing on the NeXT. Other files may be printed simply by typing:

```
lpr myfile
```

where *myfile* contains text that you can read on the screen such as your source code files.

Any program that can generate graphic Postscript files on the mainframe can be used with the NeXT printer. For instance SAS can generate Postscript figures which you may print on your local printer or imbed in a Script document. One note to remember is whether you generate the files in ASCII or EBCDIC. A Postscript generated in ASCII on the mainframe will be unreadable on the mainframe (if you were to use *xedit* to read the file the file would appear to contain random garbage). In this case you must use the `(BINARY` option to the lpr command. If you can read the Postscript file using xedit don't use the binary option. The Script command above generates by default an ASCII file so the `(BINARY` option is not needed.

If you have any problems you can contact the Computing Center or the author at *gbol@rglnext.geol.vt.edu*.

From the Editor:

The VaTNug News is looking for articles, stories, pictures, or anything else you'd like to share with the NeXT user community. If you have an article or an idea for an article, please send it to me!

You can reach me by phone at 951-0655 or via e-mail at *rri!tim@vtserf.cc.vt.edu* or *timbuck@borg.lib.vt.edu* (NeXTmail welcome). Suggestions and/or criticisms also appreciated.

Upgrading *(from page 1)*

your backup!) to start the upgrade is to log in as root, insert the Tools floppy and run the UpgradePrep application. You should quit all other applications before you click "Start". This app copies an updated `sdmach` kernel and a few other files to your hard drive. When it's done, it will restart your system.

After your system finishes rebooting, log in as root again, insert the NeXTSTEP 3.0 CD-ROM, quit any other applications that are running, and run the Upgrade_3.0 application from the CD-ROM. This app analyzes your system (available hard drive space, programs and files on the drive, etc.) and builds an "Upgrade Plan". It then allows you to examine the plan, make any changes to it you want, and finally performs the actual upgrade.

It took about 20 minutes for the Upgrade_3.0 application to build my Upgrade Plan. I had seen warnings on comp.sys.next.misc on the Usenet that Upgrade_3.0 would by default delete some demos I wanted to keep. So I changed the settings for those few programs so they wouldn't be deleted. When I was satisfied with the Upgrade Plan, I took a deep breath and clicked "Perform Upgrade". Then I went downstairs to eat dinner -- the upgrade took about 1.5 hours.

After the Upgrade_3.0 app finished copying files from the CD-ROM to the hard drive, it again restarted the system. When the login window appeared, I tried to log in on my userid. The Workspace Manager appeared, the hard drive ran for a while, and then the login window reappeared. I thought it was probably a file permissions problem or something, so I logged in as root to check it out. Everything looked ok with respect to permissions, so I poked around to see what had changed. I ran UserManager, clicked on "Open User", and it promptly died. I tried a couple of other apps: NetInfoManager, PrintManager, and the new SimpleNetworkStarter. All of them quit as soon as they launched. By this time I had a very bad feeling.No program that used the NetInfo database would run.

At this point I figured I had no choice but to rebuild the hard drive as a 3.0 drive from scratch. So I followed the instructions for doing this: insert the bootable floppy disk supplied with the 3.0 Upgrade, bring up the NMI window and halt the system, then type "`bfd -s`" from the ROM Monitor window to boot from the floppy disk (the boot floppy is unnecessary with the newer Turbo systems since ROM version 2.2 supports booting from the CD-ROM drive). After the system came up (in single-user mode), I was asked in several languages if I wished to rebuild my hard drive. I answered yes, responded to a few prompts, and after about 2 hours, the hard drive was rebuilt with a "minimal NeXTSTEP 3.0 configuration".

Once the system came up I logged in as root to recreate the userids. Everything is fine now -- I still don't know what caused the problems I had since nobody else has reported a similar problem to the Usenet groups. I suspect I messed something up when I was editing the Upgrade Plan and removed something crucial. At any rate, my NeXTStation is now running NeXTSTEP 3.0. It has so many nifty features, which I've only begun to explore. But that's another whole article!

Editor's *(from page 1)*

phenomenal purchase orders (countless orders for 1,000 copies per site all the way to one site committing to 100,000 copies of NeXTStep 486!) that only 25% of the computers running NeXTStep will be NeXT hardware. NeXT hopes that one NeXTStep 486 system will be running for every nine Microsoft Windows NT systems 24 months from now.

There's a name attached to one of the NeXTStep 486 buyers: NeXT recently announced that Chrysler has purchased 2,500 copies of the operating system. Is this a sign that corporate America sees NeXTStep as a way to gain an edge over competitors? Ailing Data General has convinced NeXT to port NeXTStep its 88110 servers (NeXT probably did the port months ago while trying to select a processor for their own yet-to-be-announced RISC workstation, now rumored to be based on the PA-RISC chip). It seems like everybody wants NeXTSTEP. Who's NeXT? Guess we'll know when the orders start shipping